

**“BEYOND DISCRETE TRIALS”
AN ANALYSIS OF AN
APPLIED BEHAVIOUR ANALYSIS
PROGRAM.**

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ABSTRACT

As a private service provider ISADD cannot afford the luxury of a full ABA program for most children. However, some children have achieved symptom free status. An analyses of possible variables suggest strong infrastructure to achieve program reliability, teaching prerequisite skills, use of visual supports for language, strong parent involvement, and individualised programs are important. Most successful children start young and with good visuo spatial skills. Apegers children need fewer hours. More research is needed to provide better guidance for individualised programming.

INTRODUCTION

ISADD is a private organisation providing ABA – Discrete Trial Training for preschool and early grades children with a diagnosis of ASD, an after-school program and counselling for adolescents in Perth. ISADD supports Case Managers in several states, in New Zealand, Jakarta and Singapore. ISADD also provides a consultancy service to a number of clients in other areas in the South-East Asian region.

At ISADD we try to follow the approach pioneered by Lovaas (1987), but reality has made us pragmatic. The original Lovaas model operated with the following variables: children were under the age of 42 months, had no co-morbidity at commencement, received 30-40 weekly hours of therapy, and program supervision involved weekly case meetings at the clinic.

This has not been possible in the “real world”. There are few parents able to afford a 30-40 hour therapy regime. Children come at all ages, many with a late diagnosis. Many come with additional diagnoses and complications. Parents have different levels of commitment of time and resources. Some are already at school. Others achieve slow gains and often continue well into school age. This makes it necessary to work around the school program.

With this number of loose variables our program appears to be more akin to the “workshop model” of service provision which originated with Lovaas’ outreach program and described and evaluated by Bibby et al.(2001). Unfortunately the outcomes they found were not nearly as effective as originally achieved by Lovaas (1987).

The main difference between ISADD’s service delivery and the workshop model is infrastructure to control what is being provided in the programs. We have no control over parent ability to buy program intensity and we do not discriminate between

children. We do however use supervision, training, our licensing system and our assessment protocol to ensure that what is offered is appropriate.

Despite all difficulties we have achieved a “symptom free” status with a number of children, none of whom had the recommended 30-40 hours per week. If we take as given that DTT is the most efficient form of teaching, what have we done beyond that to achieve success?

We faithfully follow the Discrete Trial Training protocol for teaching, using trial-trial-prompt in most cases. DTT, as defined by an Antecedent-response-consequence sequence for each trial is applied across all teaching situations, including generalisation. It is not restricted to table-top work or a specific reinforcer as assumed incorrectly by critics (Delprato,2001).

We focus on teaching attention to person and task, on functional language skills and on other preschool skills common to all ABA programs. But there are also differences to add efficiency to the learning process.

We use developmental targets borrowed from the Cognitive literature and teach cognitive prerequisites for tasks. We use our assessment protocol, a clinical assessment based on psychometric materials, to define entry point. We also use what is known about the cognitive deficits of Autism. So, for example, as children with Autism are known to have delays in the acquisition of representational skills (Baron-Coheh et al.1996), we focus heavily on this area. (This is an addition to a purely behavioral approach, where focus is on practicing the required skill, not an assumed prerequisite for that skill). We program for representational skills from basic picture recognition through to imaginary play.

Another Autism characteristic is idetic rather than generic memory, described by Wendy Lawson (2001) as “thinking in closed pictures”. We program classification tasks early, requiring the child to look for similarities based on central concepts, and then continue with tasks of increasing difficulty. The target skill is not language, but thinking in concepts rather than individual instances. We also target problem solving.

We rely heavily on the ASD child’s good visuo spatial skills, first noted by Kanner (1943), and expressed by Temple Grandin (1996) “If I cannot visualise it, I cannot comprehend it”. We therefore use visual skills to boost both discrimination and retrieval in oral language.

I have used iconic supports for development of oral language with multi-sensorially impaired children (Tender 1981) and later with Children with Autism (described in Wolfenden 1986). Frost and Bondy’s PECS (1994) is a similar approach, but better publicised.

Currently we start with something similar to the standard PECS protocol, but then continue with creating visually supported, grammatical sentences both receptively and expressively. We do not ask the child to use voice, but to point as we read, and invariably, when ready, the child begins to use voice. At first this is very tentative, but it improves. The rationale is to reduce the pressure to articulate, and to separate the target skills, (selecting words from memory, organising into sentence, articulating sentence), in order for the child to work on each individually. We also provide articulation drills to develop the oral - vocal musculature and fluency.

With mathematics we focus on achieving concepts of equivalence and number visually before we teach the counting ritual. The aim is to engage the child's visual memory and establish meaning before labels.

ANALYSIS OF RESULTS

CRITICAL VARIABLES

We became aware that some of our children were progressing with fewer than the prescribed 30-40 hours. Two years ago we looked at our successful children (Tender, 2000) in order to identify variables coinciding with achievement. We found two variables represented in the majority of the cases where children gained language and significantly reduced their Autistic symptomology: These were 1) strong parent involvement in the program and 2) use of compic when introducing language. Also most showed good visuo spatial skills at the start, but that was not surprising, given that it probably reflected intellectual potential.

These may not necessarily be the only variables and may not have been critical, as children with less success may have had similar variables. What was significant was that success could be achieved with these variables in the presence of less than 30-40 hours. See Table 1; 6 children had 20-30 hours, 3 had 10-15 and the 3 diagnosed as Aspergers received under 10 hours of formal intervention. At the same time our success rate is less than the expected 50%. This suggests that time may be critical, but not for all children. Individual differences exist.

THE ROLE OF IQ.

This year we reviewed 20 of our successful children (a new cohort – Table 2); 11 diagnosed with Autism, 5 with PDD and 4 with Aspergers Syndrome. (All were diagnosed outside ISADD). This time we tracked IQ gains, given that IQ scores are often quoted as a measure of success (eg Eikeseth et al. 2002). We picked children who were deemed successful by their Case Managers and were able to complete all sub-tests of the Wechsler Preschool and Primary Intelligence Scale – Revised. All children had IQ's above the intellectually impaired range (82 lowest full-scale IQ). Of the 20 children, 15 reached this within 2 years and 5 of the 15 within 12 months.

Verbal IQ's ranging from 71 to 159 were achieved after 6 to 49 months of therapy. Initially 10 of these children were pre verbal, 5 had labelling emerging (representing mild to moderate delays), 4 had word combinations and simple sentences but poor comprehension, and one age appropriate language but poor abstract comprehension. As expected, the 4 Aspergers children had the best initial language levels.

Visuo spatial skills before intervention were between average and superior, except for one, age 22 months, where behaviours marred assessment. This was as expected from our previous probe. Performance IQ's after therapy ranged from 84 to 145.

Full scale IQ's ranged from 82 to 149. Of the 20 children with full WPPSI –R profiles, 5 fall in the low average range, 5 in the average range, 4 in the high average, 3 superior and 3 were in the very superior range.

There is little doubt that for these children the therapy was effective in raising IQ and language levels significantly. The only predictors seem to be visuo spatial competence and early commencement. Again all children were exposed to visual support for language, and all but one had considerable parent involvement in the program.

SOCIAL LANGUAGE SKILLS

IQ alone is not sufficient for survival within the community. Social language is not well measured by IQ tests, which tap command of language, but not social use.

One of our Case Managers, Daniela Di Ciano, has just completed research where the social language of 12 successful children was assessed in comparison to typical children. She used the VIAS (1991) which assesses the social appropriateness of conversation and focuses on the way statements relate to the conversation antecedents. The 12 symptom-free children (6 originally diagnosed with Autism, 4 with PDD and 2 with Aspergers) were indistinguishable from their conversation partners, one was somewhat immature and 2 tended to mumble, but this was not suggestive of Autism. Though data analysis is not complete, we can comfortably conclude that these 12 children have appropriate social language skills. This shows that with appropriate, individualised programs, social language can be achieved at less than 30-40 hours of intervention per week.

COPING WITH SCHOOL

The most visible criterion of success is coping within the school setting. Nearly all of our children attend their local school, but that is more a reflection of Education Department inclusion policy, than a measure of ability to integrate. More informative is the child's ability to cope with group instruction without a classroom aide, and also the extent to which symptoms are still visible when under stress or in a demand situation.

Of the 2000 cohort, 8 had no aide support and 4 still needed some part time support. 7 were seen as showing no obvious criteria of Autism (some were not known as such by the school), while 5 had some residual criteria we were still working on.

Our 2002 review shows that 15 of 20 are coping well without classroom assistants. The other 5 have part-time support. 10 out of the 20 were described as showing no further symptoms, 5 showed minimal symptoms, not easily recognised by the untrained observer, while 5 still had some residual symptoms which we were addressing. Again we can conclude that for these children the program had delivered major benefits.

SOME INDIVIDUAL VARIABLES

We note that 2 children to date, have shed their Autistic symptoms within 12 months, social behaviours were normal and PPVT (1997) scores above average (120 and 115). Both were 22 months at commencement and both were second children in a family already familiar with ASD and ABA. However 2 other starters at 22 months showed good language improvement (PPVT 103 and 80), but not the same social development and reduction of symptoms. Progress has been slow, but steady and one made the 'top 20' list after 28 months.

Individual differences exist. One child (no. 5 on table 2) needed 4 years of to overcome language deficits, though socially he did well early. In contrast another (child 2 on table 2) gained language, but took 4 years to cope socially.

The speed of acquisition and the types of difficulties displayed are individual, and required an individual approach based on careful clinical assessment. It is not appropriate to use "one fits all" ABA program.